Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for storing two-dimensional spatially organized data in one dimensional space on a computer storage medium ~~by~~, the method comprising:

mapping ~~the~~ attributes of a continuous state planar space to a multi-resolutional tessellation of close~~-~~ packed uniform cells, a location of each cell being ~~uniquely identified with a sequential number whereas the number includes~~ represented by a centroid and a voronoi region created by the boundary with adjacent parent centroids forming a closed area for which properties of the cell are represented; and

uniquely identifying each cell with a sequential number including the identification of a parent cell, ~~the~~each parent cell at least partially encompassing a cluster of child cells in a spatial hierarchy ~~of specific order thereby identification of neighbour cells and child cells comprising the requirements:~~,

~~i). spatial attributes are assigned to a parent cell, whose centroid represents its location and the voronoi region created by the boundary with adjacent parent centroids forming the closed area for which the properties of the cell are represented;~~

~~ii).~~ wherein relationships between parent cells and child cells are defined by the following rules:

each~~a~~ parent cell ~~for which the~~whose centroid ~~location~~ is not ~~a~~ the centroid ~~location~~ for any lower resolution cells defines ~~the~~ a location of a single new child cell of ~~the~~ a next highest resolution; and~~alternatively,~~

~~iii).~~ each~~a~~ parent cell ~~for which its~~whose centroid ~~location~~ is also ~~a~~ the centroid ~~location~~ for any lower resolution cells defines ~~the~~ a location of ~~a single new child cell of the next highest resolution and~~ multiple new child cells of the next highest resolution including~~,~~ one new child cell at the

centroid of the parent cell and one new child cell located at each ~~of the vertices~~vertex of the parent's boundary edge; ~~whereby~~ and during initial conditions, a parent cell ~~will be~~ is assigned a general hexagon shape ~~or the shape of the plane for which it represents,~~ with a starting centroid location that can be considered ~~the~~ a planar origin.

2. (Currently Amended) A method according to claim 1, wherein the sequential numbers of the cells at each resolution are clustered by parent and ordered according to ~~a simple sequence or selected from the group: the~~ one of the following methods: sequential ordering, z-curve based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

3. (Currently Amended) A method according to claim 1, wherein the ~~cell shapes and sections of~~ cells ~~on the plane~~ can be modified by ~~including~~ one or more of the following procedures: including one or more extra cells, excluding one or more cells, bending, joining, stretching, rotating, scaling and ~~translation.~~translating.

4. (Currently Amended) A method according to claim 1, wherein the ~~hierarchal indexing~~ sequential numbers can be modified by ~~adding~~ one or ~~deleting levels~~more of the following procedures: adding one or more extra levels, deleting one or more existing levels, and introducing new unique index values.

5. (Currently Amended) A method according to claim 1 ~~wherein~~, the method further comprising introducing a new cell ~~may be introduced~~ at ~~any~~ a unique location and a specific resolution ~~whereas its~~wherein an ordering precedence ~~superceding its neighbours and its behaviors are considered as a parent~~ of the new cell supercedes an ordering precedence of neighbor cells and a behavior of the new cell is a behavior of a parent cell ~~for which its~~ whose centroid ~~location~~ is also ~~a~~ the centroid ~~location~~ for lower resolution cells.

6. (Currently Amended) A method according to claim 1, ~~wherein~~, the method further comprising introducing two or more ~~cells may be introduced at any~~new parent cells at unique locations and a specific resolution ~~and~~ wherein the boundary of the two or ~~three of the~~ more new parent cells share vertices, ~~such~~the vertices ~~define~~ defining the location of one or more new child cells, each new child ~~cells and the child cells shall be~~cell being uniquely indexed with reference to ~~its three shared parents, and the behavior of these child cells are considered as a parent cell for which their~~ the two or more new parent cells, and a behavior of the one or more new child cells is a behavior of one of the two or more new parent cells whose centroid ~~location~~ is not ~~a~~ the centroid ~~location~~ for any lower resolution cells.

7. (Currently Amended) A discrete global grid system comprising:
a processing unit,
a system memory, and
a system bus operatively coupling the system memory to the processing unit,
wherein the system memory comprises spatially organized data~~,~~ as a multi-resolutional tessellation of close-packed uniform hexagonal cells~~, is~~ stored as a one-dimensional georeference having had each two-dimensional cell projected from the faces of a platonic solid to a geodesic spheroid,
each spatial cell being uniquely identified with a sequential number~~, especially according to a method of claim 1 whereas the number~~ that includes the identification of a parent cell, ~~the~~each parent cell at least partially encompassing a cluster of child cells in a spatial hierarchy ~~of specific order thererby identification of neighbour cells and child cells.~~.

8. (Currently Amended) A system according to claim 7, wherein the sequential numbers of the cells at each resolution are clustered by parent and ordered according to ~~a simple sequence or selected from the group: the~~ one of the following methods: sequential ordering, z-curve based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

9. (Currently Amended) A system according to claim 7, wherein the ~~cell shapes and sections of~~ cells ~~on the plane~~ can be modified by ~~including or~~ one or more of the following procedures: including one or more extra cells, excluding one or more cells, bending, joining, stretching, rotating, scaling and ~~translation.~~translating.

10. (Currently Amended) A system according to claim 7 ~~wherein the hierarchal indexing is~~, wherein the sequential numbers can be modified by one or more of the following procedures: adding one or more extra levels, deleting ~~levels~~one or more existing levels, and introducing new unique index values.

11. (Currently Amended) A system according to claim 7, wherein a new cell may be introduced at ~~any~~ a unique location and a specific resolution ~~whereas its~~, an ordering precedence ~~superceding its neighbours~~of the new cell supercedes an ordering precedence of neighbor cells and ~~its behaviors are considered as~~a behavior of the new cell is a behavior of a parent cell ~~for which its~~ whose centroid location is also ~~a~~ the centroid location for lower resolution cells.

12. (Currently Amended) A system according to claim 7, wherein two or more new parent cells may be introduced at ~~any~~ unique locations and a specific resolution and wherein the boundary of the two or ~~three of the~~ more new parent cells share vertices, ~~such~~the vertices ~~define~~defining the location of one or more new child cells ~~and the~~, each new child ~~cells shall be~~cell being uniquely indexed with reference to ~~its three shared parents, and the behavior of these child cells are considered as a parent cell for which their~~ the two or more new parent cells, and a behavior of the one or more new child cells is a behavior of one of the two or more new parent cells whose centroid location is not ~~a~~ the centroid location for any lower resolution cells.

13. (Currently Amended) A system according to claim 12, wherein ~~the~~ shape, orientation and projection ~~conforms~~of the tessellation of close-packed uniform cells conform to ~~the~~ a Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid and ~~the~~ division of the icosahedron surface begins with the introduction of ~~12 points,~~ one point

on each icosahedron vertex, resulting in pentagonal shaped voronoi regions with shared cell vertices ~~located at the center of~~centered on each face of the icosahedron ~~faces~~, further defining ~~20~~one second generation hexagonal cell~~s~~ at each of the~~se~~ shared cell vertices and ~~12~~one second generation pentagonal ~~cells~~cell at each ~~at~~vertex of the icosahedron~~'s vertices.~~.

14. (Currently Amended) A system according to claim 7 ~~wherein~~, the system further comprising a spatial data retrieval subsystem ~~includes~~ ~~software instructions~~adapted ~~that~~ to mathematically convert, georeference and integrate spatial data, raster images, and topological georeferenced vectors to a gridded close-packed cell reference for storage ~~in a database or digital file.~~.

15. (Currently Amended) A system according to claim 7 ~~wherein~~, the system further comprising a digital globe visualization subsystem ~~includes~~adapted to ~~instructions which returns~~return to a computer visualization device a representation of the spatially organized data associated with a spatial area and range of resolutions in the form of a ~~whole or partial~~ rendered image of ~~the~~ a geodesic globe.

16. (Currently Amended) A system according to claim 7 ~~wherein~~, the system further comprising a spatial data discovery and file sharing tool~~includes instructions that~~ adapted to allow data referenced to the tessellation of close-packed uniform cells ~~the close-packed cell grid~~ to be advertised, shared and transmitted over a network in anyone of: a complete file transfer, a progressively transmitted transfer and a continuous state up dateable transfer.

17. (Currently Amended) A system according to claim 7 ~~wherein~~, the system further comprising a spatial data browser~~includes~~ adapted ~~instructions that~~ to identify on-line data referenced to a cell location as a result of a search query, to display~~ing~~ at ~~an automated or manually~~ set resolution, a pictographic symbol at the cell location on ~~the~~ an image of ~~the~~ a globe ~~which~~ and to~~further instructions~~ provide a means to select the~~is~~ symbol with a cursor, activating further software instructions.

18. (Currently Amended) A system according to claim 7 ~~wherein~~, the system further comprising a spatial data analyzer comprising an ~~the~~ overlapping gridded data structure which provides a framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion.

19. (Currently Amended) A system according to claim 16, the system further comprising a geospatial model building subsystem allowing ~~further allowing the~~ spatial addressing and ordering to be used as a ~~mesh or~~ grid for ~~the~~ construction of stochastic and deterministic simulation of dynamic earth events ~~whereas~~ wherein users ~~can~~ access on-demand in a peer-to-peer environment ~~a multitude of~~ temporal geospatial data at each cell and extract and utilize ~~this~~ the temporal geospatial data in custom defined storage, routing and transformation routines and formulations.

20. (Currently Amended) A system according to claim 19, ~~whereas~~wherein the transformation routines include finite difference methods.

21. (Currently Amended) A system according to claim 19, ~~whereas~~wherein the transformations routines include cellular automata.

22. (New) A method of storing two-dimensional data, the method comprising:

a) defining a hierarchical series of tessellations of uniform hexagonal cells, each tessellation having a resolution;

b) mapping one or more attributes from a continuous space to the cells of each tessellation;

c) assigning each cell in a lowest resolution tessellation a unique index comprising an identifying sequence; and

d) assigning each cell not in the lowest resolution tessellation a unique index comprising an index of a parent cell and an identifying sequence,

wherein

if a centroid point of a particular cell is located at a centroid point of a lower resolution cell contained in a tessellation of lower resolution than the tessellation containing the particular cell, the parent cell for the particular cell is the lower resolution cell; and

if a centroid point of a particular cell is located on a vertex point of one or more lower resolution cells contained in a tessellation of lower resolution from the tessellation containing the particular cell, then the parent cell for the particular cell is chosen by determining which of the one or more lower resolution cells has a centroid point which is a centroid point of a grandparent cell contained in a tessellation of lower resolution than the tessellation containing the one or more lower resolution cells.

23. (New) The method of claim 1, wherein the identifying sequence of each cell within a group of cells with a common parent cell is determined by one of the following methods: sequential ordering, z-curve-based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

24. (New) The method of claim 1, wherein the cells of each tessellation are modified by one or more of the following procedures: including one or more extra cells, excluding one or more existing cells, bending, joining, stretching, rotating, scaling and translating.

25. (New) The method of claim 1, the method further comprising laying the cells of each tessellation onto the faces of an icosahedron and projecting the data from the faces of the icosahedron to a geodesic spheroid.

26. (New) The method of claim 25, wherein a shape, orientation, and projection of the series of hierarchical tessellations conforms to the Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid and the method further comprises:

dividing the icosahedron surface by introducing one point on each icosahedron vertex, resulting in pentagonal shaped Voronoi regions with shared cell vertices centered on each face of the icosahedron, and then defining a second generation

hexagonal cell at each of the shared cell vertices and a second generation pentagonal cell at each icosahedron vertex.

27. (New) The method of claim 25, wherein the attributes comprise one or more of the following: mathematically converted georeference and integrate spatial data, raster images, and topological georeferenced vectors.

28. (New) The method of claim 25, the method further comprising receiving selected feature geometry and attribute values and returning a representation of spatially organized data associated with a spatial area and range of resolutions as an image of a geodesic globe.

29. (New) The method of claim 25, the method further comprising allowing the attributes of the cells to be advertised, shared and transmitted over a network using any one of the following methods: complete files transfer, progressively transmitted transfer and continuous state updateable transfer.

30. (New) The method of claim 25, the method further comprising identifying on-line data referenced to a cell location as a result of a search query and displaying a pictographic symbol at the cell location on an image of a globe.

31. (New) The method of claim 25, the method further comprising using the hierarchical series of tessellations as a framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion.

32. (New) The method of claim 25, the method further comprising constructing stochastic and deterministic simulations of dynamic earth events from the hierarchical series of tessellations.

33. (New) The method of claim 32, the method further comprising allowing users to extract and utilize data related to the dynamic earth events in storage, routing and transformation routines and formulations.

34. (New) The method of claim 33, wherein the transformation routines include finite difference methods.

35. (New) The method of claim 33, wherein the transformation routines include cellular automata.

36. (New) A grid system, the system comprising

a processing unit;

a system memory storing a hierarchical series of tessellations of uniform hexagonal cells, each tessellation having a resolution and each cell having a unique index; and

a system bus operatively coupling the system memory to the processing unit,

wherein,

for each cell in the lowest resolution tessellation, the unique index comprises an identifying sequence;

for each cell not in the lowest resolution tessellation, the unique index comprises an index of a parent cell and an identifying sequence;

if a centroid point of a particular cell is located at a centroid point of a lower resolution cell contained in a tessellation of lower resolution than the tessellation containing the particular cell, the parent cell for the particular cell is the lower resolution cell; and

if a centroid point of a particular cell is located on the vertex point of one or more lower resolution cells contained in a tessellation of lower resolution than the tessellation containing the particular cell, then the parent cell for the particular cell is chosen by determining which of the one or more lower resolution cells has a centroid point which is a centroid point of a grandparent cell contained in a tessellation of lower resolution than the tessellation containing the one or more lower resolution cells.

37. (New) The system of claim 36, wherein the identifying sequence of each cell within a group of cells with a common parent cell is determined by one of the following methods: sequential ordering, z-curve-based ordering, Generalized Balanced Ternary, Gray coding, and hybridized Gray GBT ordering.

38. (New) The system of claim 36, wherein the cells of each tessellation are modified by one or more of the following procedures: including one or more extra cells, excluding one or more existing cells, bending, joining, stretching, rotating, scaling and translating.

39. (New) The system of claim 36, the cells of each tessellation are laid onto the faces of a icosahedron and the data is projected from the faces of the icosahedron to a geodesic spheroid.

40. (New) The system of claim 39, wherein a shape, orientation, and projection of the series of hierarchical tessellations conforms to a Icosahedron Snyder Equal Area Aperture 3 Hexagon Grid and the icosahedron surface is divided by introducing one point on each icosahedron vertex, resulting in pentagonal shaped Voronoi regions with shared cell vertices centered on each face of the icosahedron, and then defining a second generation hexagonal cell at each of the shared cell vertices and a second generation pentagonal cell at each icosahedron vertex.

41. (New) The system of claim 39, wherein the attributes comprise one or more of the following: mathematically converted georeference and integrate spatial data, raster images, and topological georeferenced vectors.

42. (New) The system of claim 39, wherein the processing unit is adapted to receive selected feature geometry and attribute values and return a representation of spatially organized data associated with a spatial area and range of resolutions as an image of a geodesic globe.

43. (New) The system of claim 39, wherein the attributes of the cells are advertised, shared and transmitted over a network using any one of the following systems: complete files transfer, progressively transmitted transfer and continuous state updateable transfer.

44. (New) The system of claim 39, wherein the processing unit is adapted to receive a search query, reference on-line data to a cell location as a result of the search query and display a pictographic symbol at the cell location on an image of a globe.

45. (New) The system of claim 39, wherein the hierarchical series of tessellations provides framework for selecting and extracting data and completion of mathematical routines for spatial integration, analysis and fusion.

46. (New) The system of claim 39, wherein the hierarchical series of tessellations are used for the construction of stochastic and deterministic simulations of dynamic earth events.

47. (New) The system of claim 46, wherein one or more users can extract and utilize data related to the dynamic earth events in storage, routing and transformation routines and formulations.

48. (New) The system of claim 47, wherein the transformation routines include finite difference methods.

49. (New) The system of claim 47, wherein the transformation routines include cellular automata.